United States General Accounting Office

GAO

Fact Sheet for the Chairman, Committee on Governmental Affairs, U.S. Senate

September 1988

NUCLEAR WASTE

Supplementary Information on Problems at DOE's Inactive Waste Sites

GAO/RCED-88-229FS

GAO

United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-222195

September 12, 1988

The Honorable John Glenn
Chairman, Committee on
Governmental Affairs
United States Senate

Dear Mr. Chairman:

On August 4, 1988, you requested information on the number of inactive waste sites and the extent of environmental contamination at three Department of Energy (DOE) installations--Feed Materials Production Center (FMPC), Ohio; Los Alamos National Laboratory (LANL), New Mexico; and Pantex Plant, Texas. This fact sheet responds to your request and supplements the information we provided to you in our August 3, 1988, report on DOE's inactive waste sites at six other major installations.[1]

The information we compiled on the three additional installations confirms the findings we reported to you in our earlier report, namely, that the waste disposal practices used by DOE and its predecessor agencies over the past 40 years have released hazardous radioactive and chemical substances into the environment. For example, each of the three installations have reported soil contamination resulting from their inactive waste sites--sometimes at levels hundreds to thousands of times those of background levels. Further, inactive waste sites at FMPC and the Pantex Plant are suspected sources of some of the groundwater contamination detected at these installations, and are under investigation by DOE.

Our followup work also showed that DOE's nationwide inventory of inactive waste sites now contains 3,276 sites at all DOE installations, as of August 17, 1988. This represents an increase of over 2,000 sites from the number we reported to you on August 3, 1988. This increase is due to a recent update by DOE headquarters of its site inventory at 15 of its installations, conducted in response to a congressional request. We previously recommended, in our August 3 report, that the Secretary of Energy update

---

[1]Nuclear Waste: Problems Associated With DOE's Inactive Waste Sites (GAO/RCED-88-169, Aug. 3, 1988).

the DOE headquarters' inventory to account for all inactive waste sites. In our opinion, DOE's inactive waste site total reported here could increase even further if DOE headquarters continually updated its inventory of sites at all DOE installations nationwide.

- - - -

In preparing this fact sheet, we relied upon DOE-generated assessments and other documents on DOE's inactive waste sites. We also interviewed officials in DOE headquarters and the three DOE field offices responsible for overseeing FMPC, LANL, and Pantex Plant operations.

We discussed the material presented in this fact sheet with DOE officials and incorporated their clarifications where appropriate. As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this fact sheet until 30 days from the date of this letter. At that time, we will send copies to appropriate Congressional committees; the Secretary of Energy; and the Director, Office of Management and Budget.

Sections I through III contain summaries of the results of our work on FMPC, LANL, and the Pantex Plant. Appendix I lists the major contributors to this fact sheet. If you have any questions or need additional information, please contact me on (202) 275-1441.

Sincerely yours,

Keith O. Fultz

Keith O. Fultz
Senior Associate Director

CONTENTS

		Page
LETTER		1
SECTION		
1	FEED MATERIALS PRODUCTION CENTER, OHIO	4
2	LOS ALAMOS NATIONAL LABORATORY, NEW MEXICO	5
3	PANTEX PLANT, TEXAS	6
APPENDIX		
I	MAJOR CONTRIBUTORS TO THIS FACT SHEET	7

ABBREVIATIONS

DOE	Department of Energy
FMPC	Feed Materials Production Center
GAO	General Accounting Office
LANL	Los Alamos National Laboratory

SECTION 1

FEED MATERIALS PRODUCTION CENTER, OHIO

FMPC, established in 1954, is a foundry-type facility that processes uranium into various metal forms for nuclear fuel. FMPC's operations have generated a variety of radioactive, hazardous, and mixed wastes including materials such as uranium, radium, solvents, magnesium fluoride, and nitrates. Over the years, these operations have caused environmental contamination at FMPC, including groundwater contamination with nitrates and chloride above federal drinking water standards and soil contamination with elevated levels of uranium, both on- and off-site.

FMPC's past disposal practices have resulted in 10 inactive waste sites, according to DOE headquarters records. These sites include waste disposal pits, burial grounds, underground storage tanks, and a sanitary landfill. Based on assessments performed to date, one of FMPC's inactive waste sites has contaminated the soil, and other inactive sites are suspected sources of groundwater, surface water, and soil contamination.

One of the more significant examples of FMPC's inactive sites is the waste pit storage area, which has contaminated the surrounding soil with uranium in concentrations as high as 80 times background levels. This inactive site--consisting of several solid and liquid waste pits located in the western section of the installation--received low-level radioactive waste solids such as uranium, thorium, and radium-226, and hazardous materials such as chromium, sulfates, and waste oils. DOE officials suspect that the waste pits are also a potential source of groundwater contamination in the western and southern areas of the installation, both on- and off-site. FMPC officials are conducting a Remedial Investigation/Feasibility Study of the entire FMPC installation, including this site, to characterize environmental impacts and risks and to develop remedial action alternatives.

SECTION 2

LOS ALAMOS NATIONAL LABORATORY, NEW MEXICO

LANL, established in 1943, is primarily devoted to nuclear weapons research and development. The laboratory also conducts basic and applied research in physics, chemistry, engineering, health and environmental sciences, and other areas. In over 40 years of operations, LANL activities have generated large amounts of wastes including hazardous materials such as acids, solvents, chemicals and high explosives; radioactive materials including low-level liquid and transuranic solid wastes; and mixed wastes such as lithium hydride contaminated with uranium. LANL's operations have resulted in soil contamination with radioactive materials. In some cases, the contamination was detected at levels hundreds to thousands of times background levels. LANL activities have also caused groundwater contamination with radioactive and hazardous materials at levels greater than drinking water standards.

LANL's past waste disposal practices have resulted in approximately 300 inactive waste sites, according to DOE headquarters records. These sites include unlined pits and ponds, lagoons, french drains, landfills, open dumps, abandoned underground storage tanks, contaminated buildings, spills, and unplanned releases. Many of these sites have contaminated the surrounding soil, in some instances at levels thousands of times background amounts.

For example, one liquid waste disposal site (Material Disposal Area T, TA-21), which received radioactive waste waters primarily during the 1945 to 1952 period, has contaminated the surrounding soil including an area potentially accessible to the public. According to DOE's Environmental Survey Preliminary Report, soil samples in this area have detected contamination with cesium-137 and strontium-90 at levels in excess of 7,000 times background levels and plutonium-239 at levels 100 times the background level, along with high levels of tritium. LANL officials plan to further investigate the full extent of contamination in this area.

SECTION 3

PANTEX PLANT, TEXAS

The Pantex Plant, established in 1951, fabricates high explosive devices and other nuclear weapons components; assembles new nuclear weapons; maintains, modifies, and tests existing weapons in the military stockpile; and retires or disassembles existing weapons from the stockpile. Over the years, Pantex Plant activities have generated hazardous, radioactive, and mixed wastes including such substances as high explosives, mercury, beryllium, and low-level radioactive materials. Pantex Plant operations have led to soil contamination with uranium at levels as high as 100 times background levels.

Past waste disposal practices at the Pantex Plant have resulted in 48 inactive waste sites, according to DOE headquarters records, including landfills, pits, ponds, leaching beds, spills, and tank leaks. Based on assessments performed to date, Pantex Plant officials have detected several instances of actual soil contamination, along with numerous areas of potential soil and/or groundwater contamination, from the plant's inactive waste sites.

An example of one of the more serious inactive waste problems at the plant is Landfill 1 which received contaminated ash from the burning of high explosives, waste chemicals, sanitary waste, and construction debris during the 1954 to 1967 period. The cover placed on this landfill is inadequate, thereby exposing debris on the surface. While soil analyses have not been completed, DOE's Environmental Survey Preliminary Report recognizes that surface soils in this area are potentially contaminated, causing concern because of the site's accessibility to local farmers who cultivate the land immediately surrounding the landfill. Pantex Plant officials are developing a corrective action plan which calls for removal of some of the waste and placement of an earthen cover over the landfill surface. This area is under investigation to assess the presence and extent of any potential environmental contamination.

MAJOR CONTRIBUTORS TO THIS FACT SHEET

RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION, WASHINGTON, D.C.

Keith O. Fultz, Senior Associate Director, (202) 275-1441
Carl J. Bannerman, Group Director-in-Charge
Rita A. Grieco, Evaluator-in-Charge
William F. Fenzel, Advisor

(301827)

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office
Post Office Box 6015
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are $2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.